Short cadence K2 observations of eclipsing compact binaries

Simone Scaringi
K.U. Leuven

We propose to obtain short cadence K2 observations for one detached eclipsing binary in Field 4 and two eclipsing accreting white dwarfs in Field 5. For Field 4 we ask to observe the white dwarf + red dwarf binary V471 Tau, and establish the existence of a third body companion as previously claimed, but also constrain its mass to a better precision. In Field 5 we ask to observe the two eclipsing accreting white dwarfs AC Cnc and GY Cnc. AC Cnc is a nova-like variable whilst GY Cnc is a dwarf nova. With the K2 observations we will model the high-frequency variability with the current fluctuating accretion disk model, thus inferring disk geometry and viscosity for both systems. This will enable us to perform a comparative study between the aperiodic variability properties of dwarf nova versus nova-like cataclysmic variables, and determine whether previously reported differences are consistently found within other systems. Furthermore we will exploit the eclipses in these systems to resolve the high-frequency variability in orbital phase, thus providing an independent way to infer the disk geometry.